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M/035/0002
0005

October 19, 2009

Chris Kaiser
Kennecott Utah Copper
P.O. Box 6001
Magna, Utah 84044-6001

Subject: Responses to Proposal for Resolution of Notice of Violation (NOV). Responses dated June 9, 2008; September 30, 2008; February 27, 2008; October 23, 2008; July 30, 2009; and August 11, 2009; Kennecott Utah Copper (KUC); Bingham Canyon Mine; M/035/0002; Salt Lake County, Utah

Dear Mr. Kaiser:

The Division has reviewed the referenced proposals from KUC for resolution of the notice of violation issued August 8, 2007. Thank you for continuing to work with the Division on this critical matter. We believe that by submitting amendments and/or commitments to the 2003 Reclamation and Water Management Plan as listed below, this NOV will be resolved.

♦ TASK 2 through 8 - Storm Water and Sediment Management Plan

Comment #	Sheet/Page/Map/Table #	Comments	Initials
1	All	The Storm Water and Sediment Management Plan is complete. An on site visit by DOGM in the field is needed for verification the plan is being implemented. The Division suggests that KUC consider a more comprehensive risk assessment and design to a 100-year, 24-hour storm even; a cost analysis to design to a higher standard might mitigate routine clean out maintenance costs.	LAH TM

♦ TASK 9 through 12 - Sediment Sampling and Removal

Comment #	Sheet/Page/Map/Table #	Comments	Initials
2	All	The sediment sampling and removal tasks were completed in 2008.	Lah



0005

• TASK 13 through 16:

The Slope Stability study for the South End Rock Dumps Summary Report was received by DOGM July 30, 2009. The report is a brief summary of multiple detailed studies. Each detailed study is a stand alone report. Please address the follow comments from the Summary Report:

Comment #	Sheet/Page/Map/Table #	Comments	Initials
3	Page 9 Para 2	Expand the paragraph to include more information about the foundation conditions of the alluvial filled drainages. DOGM is satisfied with the summary described of the foundation conditions of the ridges.	LAH
4	Page 10 Para 3	As noted in comment 1 listed above, include more detail about the low friction angle (less than 24 and 11 degrees listed) clay soil deposits; include possible size of deposits, extrapolation of clay soil material to areas which can't be accessed, and impact on the FOS in those areas.	LAH
5	Appendix A	Foundation Conditions – The appendix is a compilation of several recent detailed studies and notes low friction angle soils below the dumps, but not much is compiled from the historic data underlying the dumps. Figure A-3 notes a "previous slide area" in the Saints Rest drainage, yet table A-4 indicates the CH-Plastic Clays in Olsen Gulch. Table A-5 also indicates high plastic clays. Is there any extrapolation of the clay soil material to areas that can't be accessed and the impact on the FOS in those areas of historic failures and susceptible soils?	LAH
6	App A Page 12 Para 2	As written "lower permeability values...shown above". Where are the permeability values shown in the report?	LAH
7	App A Page 16 Para 1	As written "...decrease in permeability". What impact will the reduced permeability have on FOS and on water quality/geochemistry?	LAH
8	App A Page 16 Para 2	Dump map is Figure 4 and not figure 3 as written – apparent typo.	LAH
9	App A Page 18 Para 2	DOGM does not believe that testing to a depth of 16.5 feet is indicative of the surface water infiltration rate throughout the entire column of all the south waste dumps area.	LAH
10	App A Page 19 Para 1	Plot the results from the leach flow monitoring system using meteoric fluctuations versus time and at a scale the shows the relation of seasonal fluctuations to the surface water infiltration rate, compared to the monitoring system data output.	LAH
11	App A Page 22 Table 6	See comment 1 listed above (also page 25 paragraph 3).	LAH
12	App A Page 23 Figure 5	Graph notes in December 99 the leaching termination is "planned". Update graph to 2009 at a scale which would show seasonal fluctuations.	LAH
13	App A Page 26 Bullet 1	A + (plus) 2 magnitude settlement range is out of the norm. Please explain. DOGM would recommend extending the dump slope stability longer than 3 years. What is KUC's long term dump stability monitoring program?	LAH

Comment #	Sheet/Page/Map/Table #	Comments	Initials
14	App A Page 26 Bullet 3,4,5	How will KUC model and monitor the phreatic surface in the foundation materials to ensure long term stability	LAH
15	App A Page 26 Bullet 6	As written "figure 2". Which figure 2?	LAH
16	App A Page 27 Table 8	No shear strength parameters are given in table 8; please provide	LAH
17	App A Page 28 Table 9	Is the only geotechnical stability analysis variable not controlled by KUC in the phreatic surfaces? Is no additional loading of the dumps planned? If this is correct, please make this statement in the report and discuss the impact in the text.	LAH
18	App A Omission	What is the FOS used for dynamic design? Include recurrence interval and peak horizontal ground acceleration.	LAH
19	App A Omission	Is there any early warning stability problem device; such as a TDR, strain gage array or SSR that is planned for the dumps? Do the dumps justify an early warning monitoring system?	LAH
20	App B Page 23 para 1	It is not clear how the assumption that "it can be safely assumed that the dump factor of safety must be at least 1.2" because there are no present day slope deformations. No slope deformations only indicate that the FOS is greater than 1.0.	LAH
21	App B Page 23 Para 1	It is not clear how the assumption that "a seismic coefficient be included", when no mention is made of the maximum peak particle velocity is at the dump locations. What is the actual PPV at the various dump locations?	LAH
22	Supplement of App C Page 2	DOGM does not believe that 8 test pits excavated with a trackhoe is representative of the geochemistry of the dumps.	LAH
23	Supplement of App C Page 14	How will the chemical reactions and long term pH of the dumps be maintained?	LAH
24	App F	July 29, 2009 debris flow analysis is not labeled as Appendix F.	LAH
25	App F Page 3 Para 1	As noted above in comment 1. The Division suggests that KUC considers a more comprehensive risk assessment and design to a 100-year, 24-hour storm. A cost analysis to design to a higher standard might mitigate routine clean out maintenance costs.	LAH
26	App F Page 21 & 22	Report list "Recommended of Options..." yet there is no mention what KUC will implement to avoid the problem in the future. The section discusses reasons why the possible mitigation methods will not work yet does not give specific recommendations for each case. The Division suggests that KUC consider further Dan-W analyses for other future potential areas, based on the back-calculated variables, and then follow through with specific mitigation actions based the findings from the analyses on the highest risk areas.	LAH
27	App F Page 31	Figure A-16 indicates a perched table represented by rilling on the south side of Saints 2 approximately 50% of the distance from the toe to the crest. Is there an explanation for the rilling? Is the area a future problem?	LAH
28	App F Page 42	It is unclear why figure B-26 was addressed in appendix F and not in Appendix G. This figure is also shown as figure 2 on page 10 of the report.	LAH
29	App F Page 46	Attachment C – manual is referenced yet not attached, the manual was also listed in the text.	LAH

Comment #	Sheet/Page/Map/Table #	Comments	Initials
30	App G Page 2 Para 1	Although shallow infinite slope failures are usually ignored, due to the massive size of KUC dumps, the shallow failures can represent a large volume of material. The Division suggests that further analyses are done.	LAH
31	App G Page 2 1 st bullet	As stated "silty clay or silty gravel". The friction angle is considerably less for silty clay. Was there a scientific basis for using the friction angle for silty clay versus the friction angle for silty gravel? It should be stated that both cases were modeled.	LAH
32	App G Table G-1	Shear strength parameters are missing out of chart.	LAH
33	App G Table G-2	Based on Table G-2, KUC should continue further studies at Yosemite to determine the pheratic surface	LAH
34	General	Many of the figures are difficult to read due to the scale.	LAH
35	General	Is there any economic value to the older historic dumps.	LAH

• **Respond to comments 3 thru 35**

Please submit in a redline strikeout format

• **Revisions have been accepted for TASKS 2 through 12**

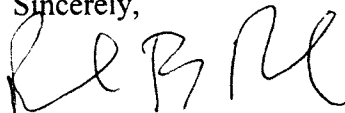
Please submit 2 Revisions in Hard copy format and an electronic final format to be incorporated into the NOI

• **Quarterly Reporting**

Continue Quarterly Reclamation Reporting.

If you need clarification on any of these issues, please contact me at 801-538-5261 or Leslie Heppler at 801-538-5257.

Sincerely,



Paul B. Baker
 Minerals Program Manager